

NEW AND CRITICAL CHINESE AND INDO-CHINESE  
MYRSINACEAE<sup>1</sup>

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*With two text-figures*

THE following notes contain a few corrections for my Revision of the Eastern Asiatic Myrsinaceae,<sup>2</sup> needed changes in J. Pitard's treatment of this family in Lecomte's Flore Générale de l'Indo-Chine,<sup>3</sup> and new species and additional records from the collections of W. T. Tsang made for Lingnan University and the Arnold Arboretum in southern Kwangtung and adjacent Tonkin, Indo-China. Most of the material was kindly lent me by Dr. E. D. Merrill, Director of the Arnold Arboretum, especially valuable being the collection of photographs, fragments, and duplicates of the Indo-Chinese collections named by J. Pitard in the Paris herbarium. In Pitard's treatment localities and collectors are cited, but not collectors' numbers. With the aid of this collection of fragments, the missing numbers have been ascertained in at least most cases, with reasonable certainty. The citation of collectors' numbers in this paper for specimens cited by Pitard must thus be considered as subject to some possibility of error. The abbreviations for the herbaria where cited specimens are deposited are: AA = Arnold Arboretum, G = Gray Herbarium, Mo = Missouri Botanical Garden, NY = New York Botanical Garden, and US = United States National Herbarium.

**Maesa perlarius** (Lour.) Merr. Trans. Amer. Philos. Soc. n. ser. **24**<sup>2</sup>: 298. 1935.

Based on *Dartus perlarius* Lour. The type is not extant.

*Maesa sinensis* A. DC. Ann. Sci. Nat. II, Bot. **16**: 80. 1841. Based on *Gaudichaud 279* (?) from southern China in the Delessert herbarium (not seen).

*Maesa tonkinensis* Mez, Pflanzenr. **9**(IV, 236): 34. 1902. Based on *Balansa 1065* and *1066* from Tonkin (not seen).

*Maesa tonkinensis* var. *macrodonta* Pitard, in Lecomte, Fl. Gén. Indo-Ch. **3**: 777. 1930. Based on Bon's collection from Kien-khé, Hanoi, Tonkin (not seen).

*Maesa tonkinensis* var. *Bonii* Pitard, l. c. Based on Bon's collection from Dung-trung, province of Thanh-hoa, Annam. A duplicate has been examined (AA).

*Maesa tonkinensis* var. *annamensis* Pitard, l. c. Based on several collections by Eberhardt from Annam. Duplicates of some of the cited specimens have been examined (AA).

*Maesa tonkinensis* var. *montana* Pitard, l. c. Based on *Jacquet 632* from the plateau Lang-bian, Annam. A photograph and fragment have been examined (AA).

ADDITIONAL SPECIMENS SEEN: TONKIN: *Clemens 3157* (US); *Pételot 2290, 6307* (AA), *2357, 2358, 2359, 2363, 2364, 2373* (AA, US), *2374, 2989, 2990, 2992* (US); *Squires 108* (NY, US).

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<sup>2</sup> E. H. Walker, A Revision of the eastern Asiatic Myrsinaceae. Philip. Jour. Sci. **73**: 1-258. fig. 1-37. 1940.

<sup>3</sup> J. Pitard, Myrsinacées. In H. Lecomte, Flore Générale de l'Indo-Chine. **3**: 765-877. 1930.



Repeated attempts to separate into distinct species and varieties the Chinese specimens attributed to this species in my revision have failed. The species seems to be a variable one in respect to indumentum and leaf size, shape, and dentition. Pitard separates *M. perlarius* (Lour.) Merr. (there called *M. sinensis* A. DC.) and *M. tonkinensis* Mez on dentition of the leaves and pubescence of the calyx-tube, and differentiates four varieties of the latter on dentition and leaf size and shape. Because the above cited Pételot specimens show much variation in these respects, sometimes in the various parts of one specimen, it seems more reasonable to consider *M. tonkinensis* with its varieties as merely variations of *M. perlarius*. This same variability in the genus *Maesa* has been met before.

**Ardisia** (§ *Tinus*) **Helferiana** Kurz, Jour. Asiat. Soc. Bengal **42**<sup>2</sup>: 86. 1873. Based on *Helfer* (Kew distribution 3589) from Tenasserim in the Calcutta herbarium. A photograph has been examined (US).

*Ardisia crispipila* Merr. Univ. Calif. Publ. Bot. **13**: 139. 1936. Based on *Pételot 1861* collected by Du Pasquier from Tonkin. A fragment and photograph have been examined (AA).

*Ardisia Helferiana* var. *septentrionalis* Pitard, in Lecomte, Fl. Gén. Indo-Ch. **3**: 846. 1930. Based on *Balansa 1073* from Tonkin. A fragment has been examined (AA).

*Ardisia albiflora* Pitard, op. cit. p. 387. Based on *Eberhardt 3764* from Tonkin. A photograph and fragment have been examined (AA).

ADDITIONAL SPECIMENS SEEN: TONKIN: *Pételot 5968, 6474* (AA, US). COCHINCHINA: *Godefroy 808* (AA); *L. Pierre 2818* (AA, NY, US); *Poilane 673* (AA, US).

The Pierre and Poilane specimens here cited differ in their toothed leaves and more rusty pubescence. However, Kurz described this species as "entire or obsolete repand-toothed." Color variation in tomentum is not a stable character. Certain differences in the various descriptions of these species lose significance when the specimens are compared.

**Ardisia** (§ *Tinus*) **solanacea** Roxb. Pl. Coromand. **1**: 27. *pl.* 27. 1795; Fl. Ind. **2**: 269. 1824. Originally described from India without mention of specimens.

*Ardisia humilis* Vahl forma *obovata* Mez, sensu Pitard, in Lecomte, Fl. Gén. Indo-Ch. **3**: 848. 1930. Based on 9 specimens from Cambodia and Cochinchina, including the following.

SPECIMENS SEEN: CAMBODIA: *Pierre 971* (AA) from Kuang Repoen in Tpong province. COCHINCHINA: *dePerry (Pierre 5321)* (AA); *Talmy* (AA); *Thorel 335* (AA).

Mez's treatment of *Ardisia humilis* Vahl is greatly confused, as has been pointed out by Merrill.<sup>4</sup> Pitard attributes to Indo-China only forma *obovata* Mez. Among his 9 cited specimens *Thorel 335* is also cited by Mez. The above listed specimens, as well as Pitard's description of *A. humilis* forma *obovata* Mez, compare favorably with my concept of *A. solanacea* Roxb., based on only a few specimens from the type locality in Madras, India, and on various other specimens from southern Asia and China.

**Ardisia** (§ *Akosmos*) **oxyphylla** Wall. var. **cochinchinensis** Pitard, in Lecomte, Fl. Gén. Indo-Ch. **3**: 851. 1930. Based on *Pierre 5319* from Cochinchina. Duplicates have been examined (AA, NY, US).

ADDITIONAL SPECIMENS SEEN: SOUTHERN KWANGTUNG: *W. T. Tsang 26710* (AA, US). TONKIN: near the Kwangtung-Kwangsi border, *W. T. Tsang 27003, 27487, 29009, 30350* (AA, US).

<sup>4</sup> Lingnan Sci. Jour. **11**: 50. 1932.



All these specimens clearly belong to the same species, but until a critical study of the southern Asiatic material has been made it is impossible to verify the correctness of the association of Pitard's variety with Wallich's species, based on his collection no. 2291 from Penang. The species is attributed by Mez also to the Andaman Islands, Sumatra, and Borneo. Tsang's Kwangtung collection represents an extension of range into China. Pitard places the species in Section *Tinus*, probably assuming that the sepals are imbricate in anthesis. However, the flowers on the Pierre specimen do not have imbricate sepals, although they are broadly ovate. Hence, I have placed it tentatively in Section *Akosmos*. The leaves resemble closely those of *A. depressa* C. B. Clarke, but the sepals are different and the flowers much larger.

**Ardisia** (§*Akosmos*) **depressa** C. B. Clarke, in Hook. f. Fl. Brit. Ind. **3**: 522. 1882. Based on a J. D. Hooker and other specimens from India. A photograph of the first has been examined.

?*Ardisia micrantha* Pitard, in Lecomte, Fl. Gén. Indo-Ch. **3**: 817. 1930. Based on *Balansa* 4812 from Tonkin. A photograph has been examined (AA).

?*Ardisia quinquegona* var. *micranthera* Pitard, in Lecomte, Fl. Gén. Indo-Ch. **3**: 827. 1930. Based on *Poilane* 10229, 10245, and 10927 from "Dent du Tigre, massif de Dong-tri, prov. de Quang-tri," Annam. Duplicates have been examined (AA).

ADDITIONAL SPECIMENS SEEN: TONKIN: *Pételot* 2368, 2370, 6465, 6468 (AA, US).

*Ardisia depressa* belongs in the complex of species of which the variable *A. quinquegona* Bl. is the most common representative in eastern Asia. According to the interpretation in my revision, *A. depressa* is the western equivalent, varying only in minor respects, as in size of inflorescence, punctuation, prominence of lateral nerves in the leaves, and ribbed fruits. I have seen only a photograph of the type. Pitard has described several species and varieties in this same complex, of which only part can now be referred, and these with some doubt. When more adequate material has been studied there will doubtless be additional changes.

**Ardisia** (§*Akosmos*) **quinquegona** Blume, Bijdr. Fl. Nederl. Ind. 689. 1825. Originally described from China without mention of specimens.

*Bladhia pseudoquinquegona* Masamune, Trans. Nat. Hist. Soc. Formosa **29**<sup>184-185</sup>: 28. 1939. Based on *C. I. Lei* 11 in the herbarium of Taihoku Imperial University, collected in Hainan. Duplicates of the type have been examined (AA, NY).

Although this widespread species is highly variable, I see no characters in Masamune's species justifying its recognition.

**Ardisia quinquegona** Blume var. **oblonga** Walker, Philip. Jour. Sci. **73**: 77. 1940. Based on *F. C. How* 71089, from Hainan (examined, US).

SPECIMENS SEEN: *Pételot* 2414 (AA, US), 2416 (US), 2417, 6464 (AA, US), 6470 (AA), the first three from Sontoy province, the others from Thai Nguyen.

This variety, originally described from Hainan, differs from the typical form of the species in its larger, oblong sepals and smaller inflorescences. Most of the additional specimens cited above have about the same characters. In most of them also the typical lepidote scales are more or less modified into pseudohairs, that is, they are raised on minute stalks and are fimbriate, thus resembling minute but coarse branched hairs. This indument covers a larger proportion of the stems. Furthermore, the leaves



are mostly larger. If the interpretation of this variety be thus modified, the collection by Gressitt (no. 1758) from eastern Kwangtung, doubtfully referred to this species in the original treatment, may be admitted, thus giving the variety a decided increase in range. These variations need further study by means of additional material and field observations. The field data accompanying available specimens are quite insufficient. I have searched among the available duplicates and fragments of Pitard's species for material of like nature, but in vain. Certain of his species in this affinity, however, are not adequately represented by available specimens and hence are not thoroughly understood.

***Ardisia quinquegona*** Blume var. ***hainanensis*** Walker, Philip. Jour. Sci. **73**: 76. 1940. Based on Lingnan University (Canton Christian College) 18098 from Hainan (examined).

SPECIMENS SEEN: TONKIN: near the Kwangtung-Kwangsi border, *Tsang* 27414?, 28993, 29876, 30226 (AA, US). KWANGTUNG: near the Tonkin border, *Tsang* 26500, 26587 (AA, US).

These specimens have the characteristic larger, narrowly triangular sepals, and somewhat smaller inflorescences. They are less distinct, however, than the Hainan specimens on which the variety was based, and tend toward var. *oblonga* Walker.

***Ardisia*** (§*Akosmos*) ***austroasiatica*** Walker, nom. nov.

*Ardisia floribunda* Wall. in Roxb. Fl. Ind. **2**: 272. 1824; Wall. List, no. 2263. 1830 (not *A. floribunda* Roem. & Schult. Syst. Veg. **4**: 804. 1819). Based on *Wallich* 2263, in the Geneva herbarium. A photograph of the duplicate in the Kew herbarium has been examined.

*Ardisia yunnanensis* Mez in part, misapplied by Walker, Philip. Jour. Sci. **73**: 64. 1940.

A shrub or small tree up to 3 m. high, the branchlets, inflorescences and petioles densely ferruginous-lepidote when young; leaves petiolate (up to 1 cm.), the blade chartaceous to coriaceous, narrowly oblong-lanceolate to oblanceolate, acute and narrowly decurrent on petiole at base, rather slenderly acuminate at apex, 12–15 cm. long, 2–4 cm. wide, entire, sometimes with reflexed margin, nearly equally green on both sides, glabrous, obscurely punctate, the glands not black, the midrib prominently raised beneath, the lateral nerves numerous (more than 20 pairs), fine, very inconspicuous, diverging at a wide or nearly right angle, straight or curved-ascending, not forming a distinct marginal nerve; inflorescences lateral, sometimes appearing terminal, more or less ferruginous-lepidote or puberulent, distinctly pyramidal-paniculate, 10–20 cm. long, the peduncle 1–8 cm. long, the pedicels (about 5 mm.) subumbellate on racemose primary branches (1–3 cm. long), the bracts linear, up to 7 mm. long, ciliate, caducous; flowers red or pink, about 4 mm. long; sepals shortly united at base, ovate to elliptic-ovate, acute to subrounded, 1.5–2 mm. long, ciliate or fimbriate, sometimes punctate, lepidote; petals ovate, acute, punctate with small dots mostly near apex, glabrous; stamens  $\frac{2}{3}$  length of petals, the anthers ovate to lanceolate, sharply acute to abruptly mucronate, blackish or obscurely punctate on back; pistil equaling or exceeding petals; fruit unknown.

SPECIMENS SEEN: YUNNAN: *Henry* 11994 (AA, NY). BURMA: *Ward* 496 (AA). NEPAL: *Wallich* 2263 (photo. at AA). INDIA: *Griffith* (Kew distrib. 3575) (G); *Strachey & Winterbottom* 1 (G).



The Henry collection from Yunnan was cited erroneously under *Ardisia yunnanensis* Mez in my revision, p. 64–65. Comparison with the other specimens cited and with a photograph of *Wallich* 2263 in the Kew herbarium (designated as the type of *A. floribunda* Wall., but probably a duplicate, the actual type probably being in Geneva) shows clearly that *A. yunnanensis* Mez, based on *Henry* 13095, is not the same as *A. floribunda* Wall., thus adding the latter species to the list of those known from China. For additional notes see the end of the next description.

**Ardisia** (§*Akosmos*) **yunnanensis** Mez, *Pflanzenr.* **9**(IV. 236): 107. 1902. Based on *Henry* 13095 from Yunnan in the Berlin herbarium. Duplicates have been examined (AA, Mo, NY, US).

The following description should replace that given in my revision, p. 64:  
A tree up to 10 m. high, the branchlets, inflorescences and petioles ferruginous-lepidote when young; leaves petiolate (up to 1.5 cm.), the blade chartaceous, oblong-lanceolate to oblanceolate, acute at base, acute or acuminate at apex, 12–22 cm. long, 3–4.5 cm. wide, entire, glabrous, obscurely punctate, dull green above, paler brownish and ferruginous-lepidote with prominently raised midrib beneath, the lateral nerves numerous (more than 20 pairs), fine, slightly raised above, more so beneath, diverging at nearly a right angle, straight half-way to margin then curved-ascending, not uniting in a definite marginal nerve, the veinlets obscure, reticulate; inflorescences lateral or subterminal, generally supra-axillary, compound-subumbellate or cymose, ferruginous-lepidote or puberulent, 5–9 cm. long, the peduncle 2.5–4 cm. long, the primary branches scattered, the pedicels about 5 mm. long, the bracts inconspicuous, lanceolate to subulate, 2 mm. long, ciliate; flowers white, about 3 mm. long; sepals united about  $\frac{1}{3}$  their length, triangular-ovate to lanceolate, sharply acute, 1–1.5 mm. long, ciliate, not punctate, lepidote; petals ovate, acute, not punctate, glabrous; stamens nearly equaling petals, the anthers ovate, obtuse or acute, mucronate, not punctate on back; pistil equaling or longer than petals; fruit about 7 mm. in diameter, brownish, not punctate, obscurely longitudinally ribbed.

SPECIMENS SEEN: (See my revision, p. 64–65, exclusive of *Henry* 11994).

*Ardisia yunnanensis* appears in two places on page 51 in my key to species of *Ardisia*. As here revised, the first occurrence, lines 4 and 5, will be *A. floribunda*. These two species may be differentiated as follows:

1. Tree to 10 m.; lateral nerves clearly evident beneath; inflorescence 10–20 cm. long, subumbellate or cymose; fls. white, 3 mm. long; sepals triangular-ovate to lanceolate, acute; petals not punctate; anthers not punctate. . . . . *A. yunnanensis* Mez.
2. Shrub to 3 m.; lateral nerves very inconspicuous beneath; inflorescence 5–10 cm. long, paniculate; fls. red or pink, 4 mm. long; sepals ovate to elliptic-ovate, acute to subrounded; petals punctate; anthers blackish or obscurely punctate. . . . .  
..... *A. floribunda* Wall.

**Ardisia** (§*Crispardisia*) **crassinervosa** Walker, *Philip. Jour. Sci.* **72**: 86. 1940. Based on Lingnan University (Canton Christian College) 17423 (examined).

*Ardisia crispa* var. *angusta* (Clarke) Mez, *Pflanzenr.* **9**(IV. 236): 145. 1902, misapplied (and misspelled *angustata*) by Pitard, in *Lecomte, Fl. Gén. Indo-Ch.* **3**: 863. 1930.

SPECIMENS SEEN: ANNAM: *Poilane* 8624 (AA, NY). *Thorel* 849 (AA).

*Poilane* 8624 is apparently the specimen referred by Pitard to this variety.



I have compared it with the type at Kew, of *A. crenata* var. *angusta* C. B. Clarke, *Griffith* (Kew distribution 3584), and find it to be quite different. Pitard may have cited *Thorel 849* under *Ardisia crispa* A. DC., but there are no data on the Arnold Arboretum specimen to identify it with Pitard's citation on p. 863.

**Ardisia** (§*Crispardisia*) **elegans** Andr. Bot. Repos. **10**: pl. 623. 1810. Based on a cultivated specimen in England, originally from the Island of Penang (not seen).

*Ardisia Thorelii* Pitard, in Lecomte, Fl. Gén. Indo-Ch. **3**: 869. 1930. Based on Thorel's unnumbered collection from Paklai, Laos. A fragment has been examined (AA).

ADDITIONAL SPECIMENS SEEN: TONKIN: *Balansa 1069* (fragment AA); *Fleury 32132* (fragment AA); *Pételot 1046* (US, NY), *2219, 6467* (US), *4379* (AA, US).

Nine specimens, including the above cited Balansa, Fleury, and Thorel specimens, were cited with the original description of *A. Thorelii* Pitard. All the specimens here mentioned compare very favorably with the south China material attributed to this species in my revision. *Ardisia patens* var. *tonkinensis* Pitard is certainly very closely related. In my revision *A. patens* Mez is considered as a synonym of *A. maculosa* Mez, which is the western equivalent of *A. elegans* Andr. Further examination of these three species and varieties may show still closer affinity.

**Ardisia** (§*Crispardisia*) **kwangtungensis** Walker sp. nov.

Frutex circa 45 cm. altus caule minutissime puberulo glabrescenti plerumque non ramoso praeter ramulis specialibus floriferis. Folia petiolo anguste alato, 5 mm. longo vel brevior, chartacea vel coriacea, anguste lanceolata vel oblongo-lanceolata, graciliter acuta, basi cuneato-acuta et decurrentia, 7-11 cm. longa, 1-2 cm. lata, integra, margine reflexa, supra obscure viridia et non punctata, subtus brunnescentia et obscure lepidota, glabra, costa subtus elevata, nervis lateralibus principalibus circa 8-jugis, supra non conspicuis subtus non prominulis, praecipue in angulis patulis divergentibus, curvato-adscendentibus, in nervo marginale definito terminantibus, nervis intermediis minus conspicuis brevioribus et in nervo marginale non terminantibus, glandulis marginalibus per nervum marginalem dispositis. Inflorescentiae minutissime puberulae, circa 7-florae, simplices, subumbellatae in apicibus uncatis ramulorum specialium lateralium floriferorum 5-11 cm. longorum, prope apicem foliis paucis donatorum, pedicellis circa 1 cm. longis. Flores ignoti. Sepala frugifera ovata vel late ovata, 2 mm. longa, non valde imbricata (sepala etiam florentia forsitan imbricata), non punctata plus minusve minutissime puberula scariosa.

Type in the herbarium of the Arnold Arboretum, collected by *W. T. Tsang*, no. 26628, in a thicket on dry clay soil near Na Leung, Fan Ch'eng District, southern Kwangtung province, China, Aug. 1-10, 1936, on an expedition along the Kwangtung-Tonkin border; duplicate in the United States National Herbarium.

If the sepals in flower are distinctly more imbricate than they are in fruit this species may be considered related to *Ardisia nervosa* Walker. It is distinguished, however, by its narrower leaves with inconspicuous rather than prominent lateral nerves, and puberulent rather than glabrous inflorescences.<sup>5</sup> If the sepals are not imbricate enough to relate it to *A. nervosa*

<sup>5</sup> In the key to the species of *Ardisia* in my Revision of the Eastern Asiatic Myrsinaceae, Philip. Jour. Sci. **73** (1940), this species would come under f<sup>2</sup> on page 54. The above characters will distinguish it at that point from *A. nervosa*.



Walker, it would appear to be related to *A. punctata* Lindl., from which it is plainly distinguished by the narrower leaves and the marginal nerves close to the edge of the leaves rather than at some little distance.<sup>6</sup> Also its inconspicuous marginal glands placed along the marginal nerve, rather



FIG. 1. *a, b.* *Ardisia kwangtungensis* Walker, drawn from the type: *a.* habit,  $\times \frac{1}{3}$ ; *b.* fruit,  $\times 3$ . *c-f.* *Ardisia Merrillii* Walker, drawn from the isotype in the U. S. National Herbarium: *c.* habit,  $\times \frac{1}{3}$ ; *d.* calyx and pistil,  $\times 3$ ; *e.* corolla with stamens,  $\times 3$ ; *f.* stamen, back view,  $\times 3$ .

<sup>6</sup>In the key to *Ardisia* in my revision (see preceding footnote) this species would come to the 7th line on p. 55. The above characters will distinguish it at that point from *A. punctata*.



than on the edge of the leaf, are distinctive. This feature, however, might not appear to be so characteristic in other specimens.

**Ardisia** (§*Crispardisia*) **Merrillii** Walker sp. nov.

Frutex 2 m. altus, caule erecto viridi fortasse non ramoso praeter ramulis specialibus floriferis. Folia petiolo 5–8 mm. longo, chartacea vel coriacea, elliptico-lanceolata, acuta vel acuminata, basi acuta, 7–10 cm. longa, 2–3.5 cm. lata, integra sed glandulis marginalibus numerosis intrusis, glabra, subtus vix pallidiora et minutissime lepidota, costa subtus elevata, nervis lateralibus 13–15-jugis crassis prominenter elevatis in nervo marginale non terminantibus venulis utrinque elevatis reticulata. Inflorescentiae minutissime puberulae, duplicato corymbosae, in apicibus ramulorum specialium lateralium floriferorum 11–30 cm. longorum foliis per plus quam superiorem trientem instructorum, axibus primariis 2.5–5 cm. longis, umbellis usque ad 8-floribus terminantibus, pedicellis 5–13 mm. longis. Flores 6 mm. longi, albi, odorati, sepalis tenuibus non valde imbricatis, ovatis vel oblongo-ovatis obtusis vel rotundatis, 2.5–3 mm. longis, non punctatis, dorso glabris obscure venosis, intus rubro-lepidotis vel subtiliter rubro-lineolatis, petalis albis, ovatis, obtusis vel rotundatis, 6 mm. longis, non punctatis, staminibus quam petalis dimidio brevioribus, antheris lanceolatis longe acutis apiculatis dorso non punctatis pistillo petalis subaequilongo. Fructus ignotus.

Type in the herbarium of the Arnold Arboretum, collected by *W. T. Tsang*, no. 28985, in a thicket on dry sandy soil near Chan Uk village near Chuk-phai, Ha-coi Tonkin, Indo-China, May 3–10, 1939, on the third Indo-Chinese expedition of Lingnan University; duplicate in the United States National Herbarium.

This species seems nearest related to *Ardisia nervosa* Walker, known only from Hainan, from which it differs in its thicker lateral nerves not uniting in a definite marginal nerve, its nonpunctate flowers with smaller and thinner sepals not veined within. It resembles *A. conspersa* Walker and related species in its inflorescences and in its special flowering branches with leaves on more than the upper third, but is distinct in its characteristic prominent leaf-venation.

**Ardisia** (§*Crispardisia*) **pedalis** Walker, sp. nov.

Suffrutex vix 30 cm. altus, caulibus erectis e rhizomate, minutissime puberulis, glabrescentibus. Folia petiolo ca. 5 mm. longo, coriacea, elliptico-lanceolata, longe acuminata, basi gradatim acuta, 6–10 cm. longa, 14–33 mm. lata, integra sed glandulis marginalibus intrusis, atro-punctata praecipue subtus, supra glabra, subtus minutissime puberula, praecipue costa elevata, nervis lateralibus non conspicuis, circa 9-jugis in nervo marginale non terminantibus. Inflorescentiae minutissime puberulae, simplices, subumbellatae, in apicibus uncatis ramulorum specialium floriferorum supra-axillarium 2–4 cm. longorum, praecipue prope apicem foliis reductis paucis instructorum, pedicellis 7–12 mm. longis. Flores 6 mm. longi albi odorati, sepalis non valde imbricatis, ovatis, acutis, 2 mm. longis, atro-punctatis puberulis, petalis ovatis vel oblongo-ovatis obtusis, 6 mm. longis, conspicue atro-punctatis extra glabris, staminibus quam petalis  $\frac{1}{3}$ – $\frac{1}{4}$  brevioribus, antheris lanceolatis acuminatis apiculatis dorso leviter atro-punctatis, pistillo petalis subaequilongo. Fructus circa 5 mm. diametro, punctatus.

Type in the herbarium of the Arnold Arboretum, collected by *W. T. Tsang*, no. 29228, in a thicket on dry sandy soil near Chan Uk village near Chuk-phai, Ha-coi,



Tonkin, Indo-China, June 10-12, 1939, on the third Indo-Chinese expedition of Lingnan University; duplicate in the United States National Herbarium. An additional specimen is *W. T. Tsang* 27321 from a similar habitat on T'ai Wong Mo Shan near the same village, collected Nov. 18 - Dec. 2, 1936.

This species perhaps resembles most closely *Ardisia affinis* Hemsl., but differs in its larger, slender, long-acuminate leaves and in its strongly punctate and larger flowers. Its small size, from which is derived its specific name, and its prominent rhizome may, of course, be more characteristic of the one known collection rather than of the species. Rhizomes are probably



FIG. 2. *a, b. Ardisia Tsangii* Walker, drawn from the type: *a.* habit,  $\times \frac{1}{3}$ ; *b.* fruit with adherent calyx,  $\times 3$ . *c, d. Ardisia pedalis* Walker, drawn from the type: *c.* habit,  $\times \frac{1}{3}$ ; *d.* flower,  $\times 3$ .



more characteristic of all species of *Ardisia* than seems to be the case, because they are so seldom collected except with the smaller species. The short, slender, special flowering branches, with or without leaves, and the abundantly punctate flowers without prominently punctate anthers are also characteristic.

*Ardisia* (§*Crispardisia*) **Tsangii** Walker, sp. nov.

Frutex fortasse non plus quam 1 m. altus, caule erecto minutissime puberulo glabrescenti, plerumque non ramoso praeter ramulis specialibus floriferis. Folia petiolo 2–5 mm. longo, chartacea, elliptico-lanceolata, longe acuta vel aliquantulum acuminata, basi cuneata, 9–12 cm. longa, 2–3.5 cm. lata, integra, margine reflexa, glandulis marginalibus obscurissimis, glabra, supra dilute viridia, subtus nonnihil pallidiora et nonnumquam lepidota, atro-punctata, costa subtus elevata, nervis lateralibus principalibus 12–15-jugis, elevatis in nervo marginale aequaliter prominulo terminantibus, nervis intermediis minus conspicuis brevioribus et in nervo marginale non terminantibus, venulis elevatis reticulatis. Inflorescentiae minutissime puberulae, simplices, subumbellatae in apicibus uncatis ramulorum specialium lateralium floriferorum 5–8 cm. longorum prope apicem foliis paucis instructorum pedicellis 1–1.5 cm. longis. Flores ignoti, sepala frugifera late ovata obtusa ad rotundata, 2–2.5 mm. longa, florentia fortasse imbricata, punctata, lepidota, ciliolata. Fructus globosus circa 6 mm. diametro (maturitate?), rubescens, valde atro-punctata.

Type in the herbarium of the Arnold Arboretum, collected by *W. T. Tsang*, no. 30707, on Ho Yung Shan, Tien-yen, Tonkin, Indo-China, near the Kwangtung-Kwangsi-Tonkin border, Oct. 13 – Nov. 22, 1940, on an expedition by Lingnan University; duplicate in the United States National Herbarium.

Because of the very obscure marginal glands, this species might seem to belong in Section *Tinus*. However, its subumbellate inflorescences on special lateral leaf-bearing flowering branches are characteristic of Section *Crispardisia*. Its very broad sepals relate it to *A. crassinervosa* Walker and to *A. nervosa* Walker. From the former it is distinguished by its larger and less prominently veined leaves, and from the latter by the absence of nerves on the inside of the smaller sepals.

*Ardisia* (§*Crispardisia*) **villosoides** Walker, Philip. Jour. Sci. **72**: 93. 1940. Based on *F. C. How* 72747 from Hainan (examined [US]).

ADDITIONAL SPECIMEN SEEN: TONKIN: *Pételot* 2418 (AA, US) border of stream in an open moist forest, Tu Phap, Province of Sontoy, June 15, 1940.

This species was previously known only from the type locality.

*Ardisia* (§*Crispardisia*) **virens** Kurz, For. Fl. Burma **2**: 575. 1877; Jour. Asiat. Soc. Bengal **46**<sup>2</sup>: 226. 1877. Based on a collection by J. Anderson from Burma (not seen).

*Ardisia stellifera* Pitard, in Lecomte, Fl. Gén. Indo-Ch. **3**: 863. 1930. Based on *Eberhardt* 3082 from Annam. A fragment has been examined (AA).

*Ardisia evonymifolia* Pitard, op. cit. p. 865. Based on *Poilane* 2259 and *Spire* 372 from Laos. Fragments have been examined (AA).

*Ardisia tonkinensis* A. DC. Rep. Sp. Nov. **8**: 354. 1910. Based on *Bon* 2912 from Tonkin. A duplicate has been examined (AA).

*Ardisia virens* var. *annamensis* Pitard, in Lecomte, Fl. Gén. Indo-Ch. **3**: 868. 1930. Based on *Poilane* 10370 from Annam. A duplicate has been examined.



ADDITIONAL SPECIMENS SEEN: TONKIN: *Pételot* 2407, 2466<sup>7</sup> (AA), 4292, 4297, 4300, 6466<sup>7</sup> (US), 6482 (AA, US).

The interpretation of this species in my revision recognized considerable variation, with only a suggestion of any coordination with geographic distribution (see p. 84). Several of Mez's species were placed as synonyms, and reference was made to Pitard's related species. Further comparison of fragments and duplicates of his specimens with the Chinese and Formosan material and with a photograph received from Calcutta of *Griffiths* (Kew Distrib. 3561), cited by both Mez and Clarke,<sup>8</sup> only strengthens my belief that this is a very variable species and not subject to subdivision, at least until much more material can be assembled. There is much variation in size and shape of leaf and of sepals. In comparing the descriptions item by item the apparent variations seem to be further confused by variant uses of words. The possession of specimens from Sumatra and Siam, which seem to belong in this variable population, further emphasizes the need to postpone subdivision, if indulged in at all.

**Ardisia** (§*Bladhia*) **gigantifolia** Stapf, Kew Bull. 1906: 74. 1906. Based on a specimen in the Kew herbarium grown by J. Veitch & Sons in England in 1901 from seed sent from "South China" by E. H. Wilson. A photograph has been examined.

*Ardisia kteniophylla* A. DC. Rep. Sp. Nov. 8: 354. 1910. Based on *Bon* 3158 from Tonkin (not seen).

SPECIMENS SEEN: TONKIN: *Pételot* 6469 (AA, US); *W. T. Tsang* 29012 (AA, US).

Although the type of DeCandolle's species has not been seen, a fragment (AA) from the type in Paris of *A. kteniophylla* var. *microdonta* Pitard, *Poilane* 3097, has been examined. The only significant difference in the descriptions of *A. gigantifolia* Stapf and *A. kteniophylla* A. DC. seems to be in the smaller number of lateral nerves of the latter. Although Pitard's variety seems to be indistinguishable from the species, there is as yet insufficient material on which to base a reduction.

**Embelia** (§*Heterembelia*) **oblongifolia** Hemsl. Jour. Linn. Soc. Bot. 26: 62. 1889. Based on *Ford* [90] from Kwangtung. A photograph has been examined.

SPECIMENS SEEN: TONKIN: near the Kwangtung border, *W. T. Tsang* 29567 (AA, US).

This species has not been previously reported from Indo-China.

**Embelia** (§*Micrembelia*) **polypodioides** Hemsl. & Mez, Notizbl. Bot. Gart. Berlin 3: 108. 1901. Based on *Henry* 10060A from Yunnan. A duplicate has been examined (AA).

SPECIMEN SEEN: TONKIN: *Pételot* 1790 (US).

This species has not previously been recorded from Indo-China.

**Myrsine stolonifera** (Koidz.) Walker, comb. nov.

*Myrsine marginata* Mez, in *Pflanzenr.* 9(IV. 236): 339. 1902 (not *M. marginata* Hook. & Arn. 1834). Based on *Faber* 96 and 657 from Chekiang. Duplicates have been examined.

<sup>7</sup> This specimen bears exactly the same data as no. 6466 in the U. S. National Herbarium and appears to be the same collection, but the discrepancy in collector's numbers is unmistakable.

<sup>8</sup> In Hook. f. *Fl. Brit. Ind.* 3: 524. 1882.



*Anamtia stolonifera* Koidz. Bot. Mag. Tokyo **37**: 40. 1923. Based on a collection by Koidzumi, Sept. 1912 from Prov. Yamato, Japan (not seen).

The name *Myrsine marginata* Mez, used in my revision through oversight, is untenable because of *M. marginata* Hook. & Arn. Jour. Bot. Hook. **1**: 283. 1834, which Mez recognized as a synonym of *Chrysophyllum marginatum* Radlk. The next oldest name is *Anamtia stolonifera* Koidz. This is unfortunate because, if this plant bears stolons, probably only those who know the growing plant have seen them. G. Masamune in 1931<sup>9</sup> proposed *Anamtia Mezii* to replace *Myrsine marginata* Mez, but the reason for not using the name *Anamtia marginata* published by the same author in 1929<sup>10</sup> was not given.

**Rapanea neriifolia** (Sieb. & Zucc.) Mez, Pflanzenr. **9**(IV. 236): 361. 1902. Based on *Myrsine neriifolia* Sieb. & Zucc. Possible duplicates of the type have been examined.

*Rapanea capitellata* var. *microcarpa* Pitard, in Lecomte, Fl. Gén. Indo-Ch. **3**: 788. 1930. Based on two collections by Poilane. Duplicates of the first, no. 5968, have been examined (AA, NY).

ADDITIONAL SPECIMENS SEEN: SOUTHERN KWANGTUNG: *W. T. Tsang* 26574, 26744 (AA, US). TONKIN: near the Kwangtung-Kwangsi border, *W. T. Tsang* 27501, 29037, 29936, 30200 (AA, US).

Pitard lists two varieties of *Rapanea capitellata* (Wall.) Mez and *R. cochinchinensis* Mez as occurring in Indo-China. It seems advisable, however, to consider *R. capitellata* var. *microcarpa* Pitard as a synonym of the common southern China species, at least until a thorough study can be made of all the southern Asiatic species of this genus. Merrill<sup>11</sup> has also recorded *R. linearis* (Lour.) S. Moore for Indo-China.

**Rapanea neriifolia** var. **yunnanensis** (Mez) Walker, Bull. Fan. Mem. Inst. Biol. Bot. Ser. **9**: 189. 1939. Based on *Rapanea yunnanensis* Mez. Duplicates of the type, *Henry* 11570, *B*, and *C*, have been examined.

*Rapanea capitellata* var. *macrocarpa* Pitard, in Lecomte, Fl. Gén. Indo-Ch. **3**: 787. 1930. Based on *Poilane* 6916 from Annam. A duplicate has been examined (AA).

ADDITIONAL SPECIMENS SEEN: TONKIN: near the Kwangtung-Kwangsi border, *W. T. Tsang* 27197 (AA, US); *Pételot* 6232 (AA, US).

Merrill<sup>12</sup> has already reported this variety from Indo-China, based on *Pételot* 7950 from Tonkin, although as *Rapanea yunnanensis* Mez. That specimen, however, is less characteristic of this variety than is *Pételot* 6232.

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<sup>9</sup> Jour. Soc. Trop. Agr. **3**: 22. 1931.

<sup>10</sup> G. Masamune, A preliminary report on the vegetation of the island of Yakusima. 107. 1929.

<sup>11</sup> E. D. Merrill, A commentary on Loureiro's "Flora Cochinchinensis." Trans. Amer. Philos. Soc. n. ser. **24**<sup>2</sup>: 300. 1935.

<sup>12</sup> Jour. Arnold Arb. **19**: 61. 1938.